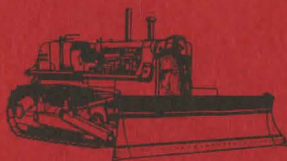


TH
447
.W34
1969

INSPECTOR'S HANDBOOK

BUILDING DEMOLITION



IOWA STATE HIGHWAY COMMISSION

AMES, IOWA

1969

BUILDING DEMOLITION

**Dan Wagner
Lyle Baughman**

INTRODUCTION

This handbook is an inspector's aid. It was written by two inspectors to bring together all of the most-often-needed information involved in their work.

Much care has been taken to detail each phase of construction, with particular attention to the requirements and limitations of specifications. All applicable specification interpretations in Instructions to Resident Engineers have been included.

The beginning inspector should look to the handbook as a reference for standards of good practice. The Standard Specifications and Special Provisions should not, however, be overlooked as the basic sources of information on requirements and restrictions concerning workmanship and materials.

CONTENTS

	Page
Demolition	1
Contract and Proposal	1
Record Book and Diary	1
Plans	3
Rodent Extermination	3
Wrecking Permits	5
Utilities	5
Water Lines	6
Sanitary Lines	7
Storm Sewers	7
Gas Lines	7
Telephone Lines	8
Records	8
Jobsite Procedure	8
Salvage	9
Appendix	11

Demolition

Demolition is the removal of manmade structures, such as houses, garages, outbuildings, foundations, sidewalks, wells, cisterns, and septic tanks from areas to be used for highway construction. Sometimes removal of trees is also included. Street sidewalks are normally not removed until road work begins.

In most cases, the area scheduled for demolition appears the same as the surrounding neighborhood. Occasionally buildings of value are removed and all that remains for the demolition contractor is removal of foundations and sidewalks.

Whether or not a building can legally be moved is usually decided by the city or county building inspector. Highway Commission personnel involved in demolition work should become familiar with local codes and requirements.

Contract and Proposal

These documents give the inspector information pertaining to both the area of demolition and the requirements of the Iowa State Highway Commission. Contracts are awarded on the basis of the sum of the total bid on each item in the proposal. Each item or parcel is listed separately on the contract, showing item number, parcel number, location of parcel, and the amount for removal of each item. Other information useful for the inspector's records and diary also appears in the contract.

Record Book and Diary

A field record book and diary must be prepared before work begins in the field. These books are used to record all daily activities performed by the project contractor.

The diary should be started on the first day the contractor works or the first day of the contract period, whichever comes first. Explain why the contractor did not start on the contract starting date, if the reason is known. This comes in handy later if a construction period report is required. The diary may be started before

CONTRACT #01902					
Type of Work <u>Salvage & Removal of Bldgs.</u> Project No. <u>UN-518-5(9)--41-57</u>					
Mile <u>1.2</u> By <u>1.2</u> County <u>Linn</u>					
In <u>Cedar Valley Expressway Route, in Cedar Rapids, from point on 1st Ave. near 4th St. NW, northeasterly, to 1st St. NW at E Ave. NW.</u>					
THIS AGREEMENT made and entered by and between the Iowa State Highway Commission, Ames, Iowa, consisting of the following members: <u>Harry J. Bradley, Jr., Darby D. Thompson, Robert C. Barry,</u> <u>John R. Hansen, Robert Voorhees</u> party of the first part, and <u>J. C. WHITE Excavating Co.</u> <u>Des Moines, Iowa</u>					
party of the second part.					
WITNESSETH: That the party of the second part, for and in consideration of \$ <u>***13,925.00</u> payable as set forth in the specification, has contracted hereby to construct various items of work and, or, to supply various materials or supplies in accordance with the plans and specifications hereon, and to the locations designated in the notice to bidders, as follows:					
Item No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Parcel 915, 320 1st Ave. NW			\$	600.00
2	Parcel 924, 120 3rd St. NW				650.00
3	Parcel 933, 309 A Ave. NW				450.00
4	Parcel 934, 305 A Ave. NW				400.00
5	Parcel 941, 306 A Ave. NW				350.00
6	Parcel 942, 308 A Ave. NW				400.00
7	Parcel 942, 308 A Ave. NW				150.00
8	Parcel 942, 308 A Ave. NW				125.00
9	Parcel 942, 312 A Ave. NW				150.00
10	Parcel 943, 314 A Ave. NW				425.00
11	Parcel 943, 314 A Ave. NW				125.00
12	Parcel 944, 320 A Ave. NW				750.00
13	Parcel 944, 320 A Ave. NW				200.00
14	Parcel 944, 320 A Ave. NW				150.00
15	Parcel 963, 220 A Ave. NW				625.00
16	Parcel 963, 220 A Ave. NW				300.00
17	Parcel 969, 223 B Ave. NW				450.00
18	Parcel 969, 219 B Ave. NW				450.00
19	Parcel 969, 221 B Ave. NW				325.00
20	Parcel 970, 217 B Ave. NW				700.00

Party of the second part certifies by his signature on this contract that he has complied with 324.17(8) of the 1962 Code of Iowa as amended.

Said specifications and plans are hereby made a part of and the basis of this agreement, and a true copy of said plans and specifications is now on file in the office of the Iowa State Highway Commission under date of November 30, 1967.

That in consideration of the foregoing, the party of the first part hereby agrees to pay the party of the second part promptly and according to the requirements of the specifications the amounts set forth, subject to the conditions as set forth in the specifications.

The parties hereto agree that the notice and instructions to bidders, the proposal filed herein, the general specifications of the Iowa State Highway Commission for 1964 together with special provisions attached, together with the general and detailed plans, if any, for said project Linn UN-518-5(9)--41-57, together with second party's performance bond, are made a part hereof, and together with this instrument constitute the contract between the parties hereto.

That it is further understood and agreed by the parties of this contract that the above work shall be commenced on or before January 2, 1968 and shall be completed on or before April 30, 1968.

That time in the execution of this contract and that said contract contains all of the terms and conditions agreed upon by the parties hereto.

IN WITNESS WHEREOF the parties hereto have set their hands for the purpose herein expressed to this and three other instruments of like tenor, as of the 9th day of December 1967, at Des Moines, Iowa.

IOWA STATE HIGHWAY COMMISSION

By [Signature]
Party of the first part

J. C. WHITE EXCAVATING CO. OF DES MOINES, IOWA

By [Signature]
Party of the second part

the contract period begins in order to document preparatory steps, such as rodent inspection.

The record book helps maintain a weekly progress report on work being done. Because demolition is a relatively new operation in the construction department, inspectors may observe possible means of improving record book set-ups. Diaries should therefore be kept on an individual basis.

Each individual item and parcel should be listed on separate sheets along with all information pertaining to the respective item or parcel. This forms a record of the project's progress from the beginning of the job to the completion. This system fulfills all demolition project record requirements.

Documenting all work in the diary as well as noting it in the record book is essential. Such things as locations of utilities, plugging sewers, and extermination (if required) must be included in both volumes.

Plans

Plans must be on the job at all times. Becoming familiar with the plans helps determine the locations of all involved parcels. General notes pertaining to the projects are also helpful. Plans can be obtained from the resident engineer. Parcels to be demolished should be shaded in. Mark on the plans (in color) the locations of water cutoffs, sanitary sewer cutoffs, and any other pertinent information prior to the beginning of work. This helps prepare as-built plans upon completion of the project.

Plans usually state the estimated date of possession of the structures. These dates should be checked through the resident engineer to verify that the dates are final. If structures are not available for demolition, the contractor should be informed; such matters influence his work schedule.

Rodent Extermination

This is required by the Special Provisions. To facilitate progress of the work, an inspection should be

APPLICATION FOR WRECKING PERMIT	
TO: BUILDING SAFETY DEPARTMENT CITY OF CEDAR RAPIDS, IOWA	PERMIT No. Date
..... permit to wreck the	
..... at	
Stories	Fire Zone
Owner	
W'r'g Contr.	Addr.
FEE	Signature/Applicant
This application and any permit that may be granted in response thereto are subject to all laws of the State of Iowa and all ordinances of the City of Cedar Rapids, Iowa, that may have bearing on same.	
Date	Appr'vd.
CC: Applicant, Eng'g. Health, Bldg. Insp.	500-10/67 See back of sheet for CONDITIONS OF PERMIT
<p>CONDITIONS for issuance of PERMIT: (Bond, Street Occupancy Permit, Fences, Barricades, Protective Canopies, Walkways, etc):</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>The Owner or his Representative Shall:</p> <ol style="list-style-type: none"> 1. Notify all utility companies and assume the responsibility for proper disconnections, including removal of electrical hazards, capping of sewers, and termination of gas, electrical and water lines. 2. Fill in excavations, cisterns, pits and other depressions to grade. 3. Clean up weekly; accomplish prompt and thorough final clean-up. 	

made approximately one week prior to the beginning of demolition work. This requires the inspector and a representative of the contractor to contact the city or county health department, depending upon the job location. An official health department representative should accompany the inspector and the contractor to examine each individual parcel on the contract. The health department representative then decides whether or not a parcel needs placement of poison for rodents, or a house needs fumigation for roaches.

Wrecking Permits

The contractor may be obligated to obtain wrecking permits for each separate structure. These permits can be obtained from the city or county building department, depending upon the job location. Cities have different requirements. The cost of obtaining a wrecking permit normally falls to the contractor. The wrecking permit number and the date of issuance must be recorded in the inspector's record book. Wrecking permits must be posted by the contractor prior to beginning work. They should be visible to the public, and they must not become lost or destroyed before the parcel is completely demolished and all debris hauled away.

Each building department, depending on the city or town, has codes stating how a building should be demolished and what barricades are necessary for the protection of pedestrian and automobile traffic. In general, these codes are established for the protection of everyone involved in the area of the demolition work. The contractor and the inspector should both be familiar with these codes and follow them.

Utilities

Utilities are such things as sanitary sewers, storm sewers, water lines, telephone lines, gas lines, and power lines. Utility company officials should be invited to a preconstruction conference with the resident engineer and the contractor to discuss the contractor's schedule and resolve potential problems.

The utility companies should be notified in advance of the time the contractor starts work. They require ample time to locate and disconnect their services. All utility cutoffs should be coordinated with the contractor so his work can progress steadily. By the same token, the contractor should arrange his work to cooperate with the utility companies.

Water Lines

Water cutoff locations are usually determined by an official of the city water works department. Most cutoffs are made at the curb cock shut-off valve either on the lead side (side toward the street) or just behind the shut-off valve (side toward the residence). The lead pipe side is bent and clamped to prevent leaks. The excavation should be left open for a short period of time to determine if leaks appear. The pipe may be threaded and tapped off with a plug when service is cut off behind the shut-off valve (side toward the residence).

In some instances, the water department may require that the water be cut off at the main; usually this will require excavation in the traveled way. If the main is abandoned at the time of road construction, cutoff at the main may not be required at the time of demolition. This should be discussed with the city water department.

The Highway Commission pays for these water cutoffs on some projects. The inspector should be aware of who pays for the cutoffs. Requirements differ from town to town.

The contractor should mark all water shut-off valves, keeping them from being disturbed by the contractor's equipment. Water cutoffs should be completely disconnected and plugged before the structure is demolished. Otherwise, the water line may be pulled completely out of the main, causing extensive damage and water loss. All cutoffs should be located, referenced, and recorded for future use. The ties should be recorded on as-built plans. This information becomes helpful when the proposed roadway is constructed.

Sanitary Lines

The contractor must cut off and seal all sanitary lines leading from structures to be removed. These lines are located near the structure and cut off. The broken open end still leading to the main line is then cleaned out and sealed with a mortar mix. An 8-inch mortar plug is usually the minimum size required. The inspector should concurrently locate and reference the cut and plugged end with distances from the main line. The main line is usually found in an alley. After referencing is completed, the excavation may be backfilled.

Storm Sewers

Storm sewers are normally not disturbed. Most are located in the traveled way, and can be removed at a later date if no longer in service. If they are in the way, however, storm sewers should be handled in the same manner as sanitary sewers.

Water lines must be properly capped to prevent contamination of the water supply. Lines to sewers must be plugged to prevent foreign objects and rodents from entering the sewer system.

Gas Lines

Gas line cutoffs are usually handled by the gas company. The contractor should contact the gas company and inform them of the demolition work.

The electrical company should be informed by the contractor of the location and type of work to be done and requested to remove their lines from the structures. For safety reasons, it is important that power lines be removed from structures.

Electrical utility companies usually remove all meter boxes when doing a cut off. The inspector should make a second check with a representative of the electrical utility to ensure that all electrical power has been taken out. The company usually keeps a check list of each structure.

Telephone Lines

The telephone company should also be informed of the location and type of work taking place in the demolition area. The inspector can request that they remove lines attached to structures involved in the contract. Check if any telephones have been left behind. The telephone company may want to retrieve them.

Payment responsibility for disconnection of the various utilities is outlined in the specifications, special provisions, and/or plans for a particular project. If any questions arise concerning this or other matters pertaining to the project, contact the resident engineer.

Records

All information on utilities must be recorded in the field record book. The sample set-up serves as both a complete record of demolition and as a check list.

Jobsite Procedure

When the contractor is prepared to start demolition of structures the inspector should be assured that

- 1) All utilities have been cut off.
- 2) The wrecking permits are placed in a manner complying with local requirements.
- 3) The contractor has all fences or barricades required by city building codes in place.

There is no set pattern for the contractor to follow in demolishing a structure. The inspector should be primarily concerned

- 1) With getting the structure torn down and all debris removed in a safe manner.
- 2) That the contractor does not damage adjoining property not in the demolition contract. (Liability insurance is covered in the specifications.)

All debris should be removed to leave the site in a clean condition prior to backfilling excavation areas. Someone may return in the future to excavate for a new structure; any rubble left behind by demolition may then cause construction problems.

Trees must also be removed. Normally, only trees interfering with demolition work should be removed. Remaining trees are removed under subsequent grading contracts. The resident engineer (or the plans) may specify removal of dead or diseased trees in special cases.

It is the contractor's responsibility to acquire an area satisfactory to the city and to the Highway Commission for disposal of debris and rubbish from the demolition site. He must backfill excavations within two weeks, or fence open excavations with snow fence. Suitable material must be obtained for backfilling. Some backfill areas require compaction with a sheepsfoot roller. These areas are designated on the plans under "general notes". Backfill must be placed in lifts and compacted as shown on applicable plans and specifications for the particular project.

The area backfilled should be bladed relatively smooth and blended with the adjacent terrain and elevation. Water pondage should be eliminated. Extra compaction is needed because structures may be located in these areas at a later date. All installation, maintenance, and removal costs of fences and barricades erected to keep the site from becoming a public hazard are incidental to other items on the contract.

The contractor must take care to control air pollution, such as dust. He should wet down masonry thoroughly, providing water and the necessary equipment.

Salvage

The demolition (prime) contractor may sublet a portion of the job to a salvage subcontractor prior to demolition. Certain items are then removed for resale to the public. The subcontractor is required to operate under conditions established in the original contract. An authorized representative of the prime contractor should be on the job at all times.

This allows the Highway Commission to retain control of the various salvage operations through the prime contractor. (See Spec. 593)

The prime contractor may sell the house or structure if it is torn down on the existing site. Under no circumstances should a house or structure be moved from its existing site unless provided for in the contract. The prime contractor must keep all houses and structures secure to avoid creating a public hazard. No items should be stored on the premises, the right of way, or the street pending sale or other disposal.

Sometimes salvage work removes enough of the structure to constitute demolition, and a wrecking permit is needed for salvaging. A rule of thumb is: if the salvage work causes any portion of the structure to collapse or endangers persons entering the structure after salvage is completed, the work is considered demolition. To remove all doubt, permits should be obtained and posted before work begins. Posting permits too early invites vandalism.

APPENDIX

SAMPLE RECORD PAGES

INDEX PAGE			1
ITEM NO.	DESCRIPTION	PAGE NO.	

12

CONTRACTORS PERSONNEL	INSPECTION PERSONNEL	2
J.C. WHITE EXCAVATING 2120 HARDING RD. DES MOINES, IOWA.	ROBERT C. FAY	RESIDENT ENGR. OFFICE 365 5702 HOME
SUPT. RALPH WHITE TRUCK DRIVER - DON ROBINSON TRUCK DRIVER - R.C. WHITE	KEN BUCKLIN	ASST. RESIDENT ENGR. OFFICE 365 5702 HOME -
IOWA SALVAGE DES MOINES, IOWA.	DON WAGNER	INSPECTOR S.W.
SALVAGE FOREMAN WAYNE SONDERLIETER		
	CHECKED BY	

13

CONTRACT INFORMATION

3

PROJECT NO. LN-518-5(9)-41-57

LINN COUNTY

SALVAGE AND REMOVAL OF BUILDINGS
ON THE PRIORITY 1 SECTION OF THE
CEDAR VALLEY EXPRESSWAY IN CEDAR
RAPIDS.

CONTRACT STARTING DATE AUG. 12, 1968
CONTRACT COMPLETION DATE NOV. 30, 1968
CONTRACT CALENDAR DAYS 111
ACTUAL STARTING DATE SEPT. 10, 1968
ACTUAL COMPLETION DATE OCT. 24, 1968
ACTUAL CALENDAR DAYS 45
LIQUIDATED DAMAGES/DAY

14

QUANTITIES

4

ITEM NO.	PARCEL NO.	LOCATION	DESCRIPTION	AMOUNT	% OF CONTR.	BOOK NO.	PAGE NO.	PLATE
1	PARCEL 915	320 1 ST AVE N.W.	2 STORY FRAME HOUSE	600.00	4.31	57 501	6	29
2	PARCEL 924	120 3 RD ST. N.W.	2 STORY FRAME HOUSE	650.00	4.67	57 501	7	29
3	PARCEL 933	309 1 ST AVE N.W.	1 STORY FRAME HOUSE	450.00	3.23	57 501	8	29
4	PARCEL 934	305 1 ST AVE N.W.	1 STORY FRAME HOUSE	400.00	2.87	57 501	9	29

A- ITEM NO., PARCEL NO., LOCATION, DESCRIPTION, AND AMOUNT GIVEN ON CONTRACT

B- PERCENT OF CONTRACT OBTAINED BY DIVIDING AMOUNT OF PARCEL BY TOTAL SUM OF CONTRACT.

C- BOOK NO. IS DESIGNATED BY YOUR OWN OFFICE FOR FILING AND REFERENCE PURPOSES.

D- PAGE NO. IS SELF EXPLANATORY

E- PLATE NO. DESIGNATES AREA WITHIN A CITY PROJECT.

15

5

WEEKLY PROGRESS

CONTRACT ITEM	% OF CONTR.	TOTAL TO DATE	% ITEM COMP.	WEIGHTED %	TOTAL TO DATE	% ITEM COMP.	WEIGHTED %	TOTAL TO DATE	% ITEM COMP.	WEIGHTED %	TOTAL TO DATE	% ITEM COMP.	WEIGHTED %	TOTAL TO DATE	% ITEM COMP.	WEIGHTED %
<p>This book setup will follow the general form of the Monthly Progress Report, Form 239A. The project inspector is expected to keep this up to date and to report the total per cent of contract completed, the per cent of major items completed (as designated by the Resident Engineer), along with a brief statement of work done during the past week and a brief statement of the contractors plans for future work. Keeping in mind that 4 weeks can be shown on one page, leave enough consecutive pages open to cover the contract period, plus approximately 20 per cent overrun.</p>																
TOTAL WEEK ENDING-				TOTAL WEEK ENDING				TOTAL WEEK ENDING				TOTAL WEEK ENDING				

16

6

APRIL EQUIPMENT LOG

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TD-18A DOZ.	X	X	X	X	X	X		X	X	O	O	6	X		X			6	X	X											
TD-14A PUSH	X	X	X	X	X	X		X	X	X	X	X	X		X			6	X	X											
END LDR.	X	X	X	X	X	X									X			6	X	X											
TRUCK(57)	X	X	X	X	X	X									X			6	X	X											
"C" PULL	X	X	X	X	X	X		O	A	X	X	X	O		X			6	X	X											
"C" PULL	X	X	X	X	X	X		X	X	X	X	X	X		X			6	X	X											
"C" PULL LET WEST SHEEPS FOOT	X	X	X	X	X	X		X	X	X	X	X	X		X			6	X	X											
RHONE DISC ADAMS	X	X	X	X	X	X		X	X						X			6	X	X											
MOTORGRADER	X	X	X	X	X	X		X	X	X	X	X	X		X			6	X	X											
P-H DRAGLINE SAND DRAIN	X	X	X	X	X	X									X			6	X	X											
EQUIPMENT BROUGHT IN APRIL 8															X			X													
REMOVED ON APRIL 18, 65																															

X- WORKED NORMAL DAY

6- NUMBER OF HOURS WORKED (LESS THAN A NORMAL DAY-OR MORE THAN)

O- EQUIPMENT BROKE DOWN (NOT AVAILABLE)

- - AVAILABLE BUT NOT WORKED

R- RENTED

17

7

DESCRIPTION OF EQUIPMENT						(NET)		REMARKS (CONDITION)
GENERAL DESCRIPTION	NO. OF PIES	MAKE	SERIES OR MODEL	CAPACITY	ENGINE H.P.	TYPE DRIVE	TYPE SHIFT	

18

8

SALVAGE & REMOVAL OF BUILDINGS					REMOVAL DATE				BACKFILL DATE		SEWER PLUGGED DATE		WATER SERVICE DATE	
ITEM	PLATE	PARTIAL	LOCATION	DESCRIPTION	START	COMP.	START	COMP.	SANIT.	STORM	DISCON.	PLUGGED	DISCON.	PLUGGED

EXTERMINATION		DISPOSITION		GAS SERVICE DATE		POWER LINES DATE		TELE LINES DATE		INSP BY CITY INSP		WRECKING PERMIT		INSP BY STATE INSP	
DISCON.	PLUGGED	DATE	BY WHOM	REMOVED	DATE	BY WHOM	REMOVED	DATE	BY WHOM	DATE	NO.	DATE	NO.	DATE	INSP.

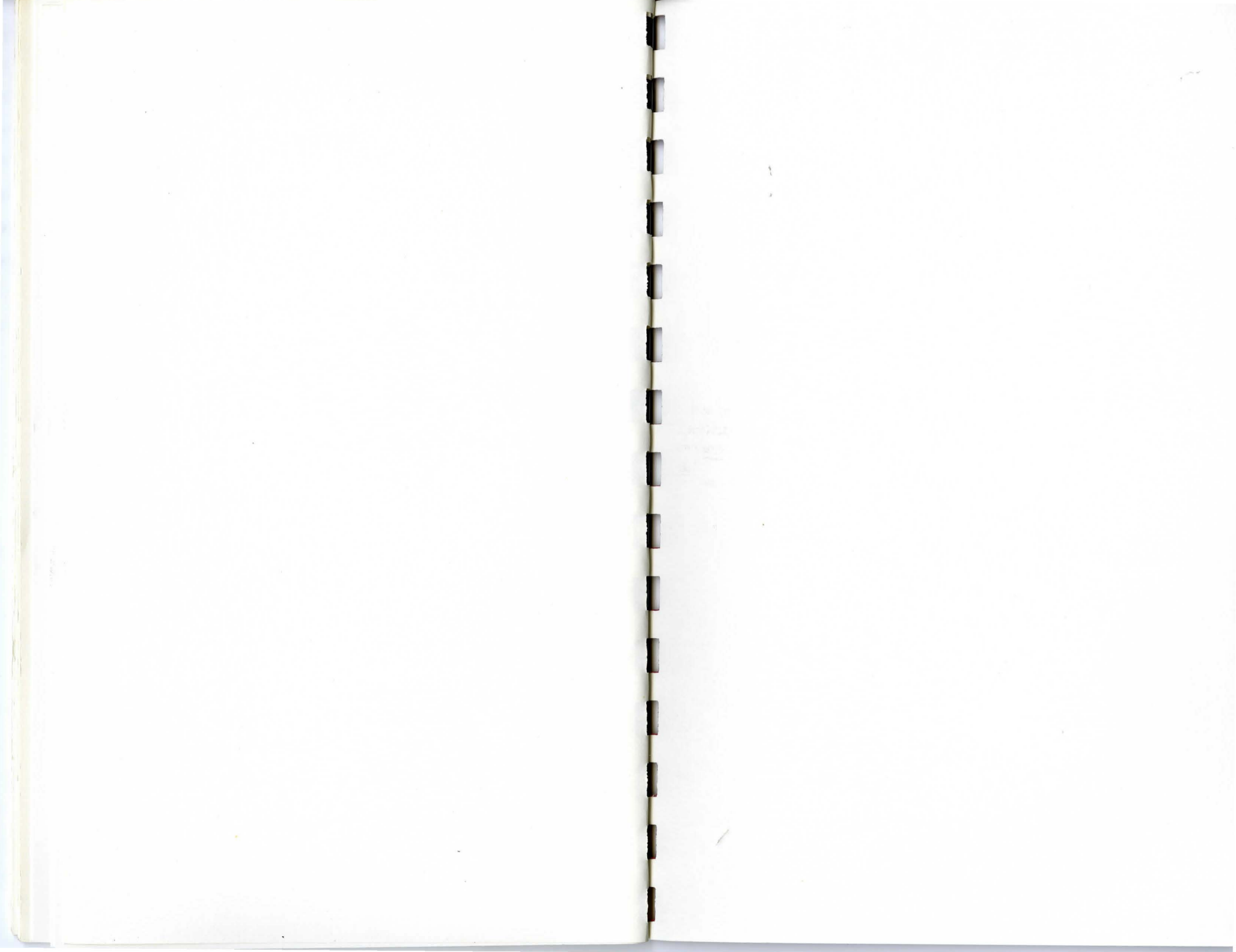
REMARKS:

DISPOSITION SHOULD SHOW IF BUILDING WAS HAULED AWAY & OR BURNED, IF SO, BY WHOM & WHERE.

EXTERMINATION SHOULD SHOW DATE & BY WHOM.

MEASURED AS PER ARTICLE _____

19







STATE LIBRARY OF IOWA



3 1723 02044 2232